

I/We Claim:

1. A method of forming a powder metal compact for sintering, comprising the steps of:

providing a die set including a die having a cavity for receiving powder metal and containing said powder metal while it is being compacted into a compact, said die set including at least one punch movable into said die in a direction of compaction and out of said die in a direction of retraction along an axial direction, said die set being able to be opened to permit powder metal to be filled into said die and able to be closed when the powder metal previously filled into said die is compacted in said die, wherein when the die is closed, an interface surface of said punch that extends along said axial direction comes into sliding contact with another interface surface of said die set that extends along said axial direction at a face-to-face interface so as to create an absence of powder metal between said two surfaces at said face-to-face interface and create an opening through a wall of said compact in a direction perpendicular to the axial direction at said face to face interface;

filling powder metal into said die;

closing said die set so as to create said face-to-face interface;

applying pressure to said powder metal within said die;

~~retracting said punch from said die; and~~

ejecting said compact from said die.

2. The method of claim 1, wherein a surface of said punch extends along said axial direction in the direction of retraction from said interface surface of said punch and is continuous so as to form a surface of said compact adjacent to said opening and permit said punch to be retracted from said die after forming of said compact.

3. The method of claim 1, wherein powder metal is compacted on one side of said opening in the direction of compaction from said opening and not in the direction of retraction and wherein powder metal is compacted on the other side of said opening in the direction of retraction from said opening and not in the direction of compaction.
4. The method of claim 1, wherein the axial direction is aligned with the direction of gravity.
5. The method of claim 1, wherein the opening is a hole.
6. The method of claim 5, wherein the hole extends substantially orthogonally to the direction of gravity.
7. The method of claim 1, wherein the opening joins a slot.
8. The method of claim 7, wherein the slot extends perpendicular to the direction of gravity.
9. The method of claim 1, wherein the other surface is on another punch.
10. The method of claim 9, wherein both punches are movable along the axial direction.
11. The method of claim 10, wherein the axial direction is aligned with the direction of gravity.

12. A powder metal part formed by the method claimed in claim 1.
13. A die set for forming a powder metal compact for sintering, comprising:
a die having a cavity for receiving powder metal and containing said powder metal while it is being compacted; and
at least one punch movable into and out of said cavity of said die along an axial direction;
wherein said die set is able to be opened to permit powder metal to be filled into said cavity of said die and able to be closed when the powder metal previously filled into said die is compacted in said die, wherein when the die is closed, a surface of said punch that extends along said axial direction comes into sliding contact with another surface of said die set that extends along said axial direction at a face-to-face interface that is substantially free of powder metal between said two surfaces at said face-to-face interface so as to create an opening through a wall of said compact, said opening extending in a direction perpendicular to the axial direction at said face to face interface.